

FORM PTO-1390 REV. 5-93		US DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE	ATTORNEYS DOCKET NUMBER 000000 P01,0005
TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A FILING UNDER 35 U.S.C. 371			U.S. APPLICATION NO. (if known, see 37 CFR 1.5) 09/744536
INTERNATIONAL APPLICATION NO. PCT/DE99/02004	INTERNATIONAL FILING DATE 01 JULY 1999	PRIORITY DATE CLAIMED 27 JULY 1998	
TITLE OF INVENTION METHOD DEVICE AND SYSTEM FOR OPERATING MOBILE TELECOMMUNICATIONS TERMINALS IN A PUBLIC CELLULAR MOBILE RADIO NETWORK			
APPLICANT(S) FOR DO/EO/US MANFRED TASTO			
Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:			
<ol style="list-style-type: none"> 1. <input checked="" type="checkbox"/> This is a FIRST submission of items concerning a filing under 35 U.S.C. 371. 2. <input type="checkbox"/> This is a SECOND or SUBSEQUENT submission of items concerning a filing under 35 U.S.C. 371. 3. <input checked="" type="checkbox"/> This express request to begin national examination procedures (35 U.S.C. 371(f)) at any time rather than delay. 4. <input checked="" type="checkbox"/> A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date. 5. <input checked="" type="checkbox"/> A copy of International Application as filed (35 U.S.C. 371(c)(2)). <ol style="list-style-type: none"> a. <input checked="" type="checkbox"/> is transmitted herewith (required only if not transmitted by the International Bureau). b. <input checked="" type="checkbox"/> has been transmitted by the International Bureau. c. <input type="checkbox"/> is not required, as the application was filed in the United States Receiving Office (RO/US) 6. <input checked="" type="checkbox"/> A translation of the International Application into English (35 U.S.C. 371(c)(2)). 7. <input checked="" type="checkbox"/> Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. §371(c)(3)) <ol style="list-style-type: none"> a. <input type="checkbox"/> are transmitted herewith (required only if not transmitted by the International Bureau). b. <input checked="" type="checkbox"/> have been transmitted by the International Bureau. c. <input checked="" type="checkbox"/> have not been made; however, the time limit for making such amendments has NOT expired. d. <input checked="" type="checkbox"/> have not been made and will not be made. 8. <input type="checkbox"/> A translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)). 9. <input checked="" type="checkbox"/> An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)). 10. <input type="checkbox"/> A translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)). 			
Items 11. to 16. below concern other document(s) or information included:			
<ol style="list-style-type: none"> 11. <input checked="" type="checkbox"/> An Information Disclosure Statement under 37 C.F.R. 1.97 and 1.98; (PTO 1449, Prior Art, Search Report, References). 12. <input checked="" type="checkbox"/> An assignment document for recording. A separate cover sheet in compliance with 37 C.F.R. 3.28 and 3.31 is included. (SEE ATTACHED ENVELOPE) 13. <input checked="" type="checkbox"/> Amendment "A" Prior to Action. <ol style="list-style-type: none"> <input type="checkbox"/> A SECOND or SUBSEQUENT preliminary amendment. 14. <input checked="" type="checkbox"/> A substitute specification and substitute specification mark-up. 15. <input checked="" type="checkbox"/> A change of address letter attached to the Declaration. 16. <input checked="" type="checkbox"/> Other items or information: <ol style="list-style-type: none"> a. <input checked="" type="checkbox"/> Submission of Drawings and Drawing Changes b. <input checked="" type="checkbox"/> EXPRESS MAIL #EL655302801US dated January 25, 2001 			

U.S. APPLICATION NO. (if known) **697744536**INTERNATIONAL APPLICATION NO.
PCT/DE99/02004ATTORNEY'S DOCKET NUMBER
P01,00517. ☒ The following fees are submitted:**BASIC NATIONAL FEE (37 C.F.R. 1.492(a)(1)-(5):**

Search Report has been prepared by the EPO or JPO \$860.00

International preliminary examination fee paid to USPTO (37 C.F.R. 1.482) .. \$690.00

No international preliminary examination fee paid to USPTO (37 C.F.R. 1.482) but
international search fee paid to USPTO (37 C.F.R. 1.445(a)(2)) \$710.00Neither international preliminary examination fee (37 C.F.R. 1.482) nor international
search fee (37 C.F.R. 1.445(a)(2)) paid to USPTO \$1000.00International preliminary examination fee paid to USPTO (37 C.F.R. 1.482) and all
claims satisfied provisions of PCT Article 33(2)-(4) \$ 100.00**ENTER APPROPRIATE BASIC FEE AMOUNT =**

CALCULATIONS

PTO USE ONLY

\$ 860.00

Surcharge of \$130.00 for furnishing the oath or declaration later than ☐ 20 ☐ 30 months
from the earliest claimed priority date (37 C.F.R. 1.492(e)).

\$

Claims	Number Filed	Number Extra	Rate		
Total Claims	15 - 20 =	0	X \$ 18.00	\$	
Independent Claims	02 - 3 =	0	X \$ 80.00	\$	
Multiple Dependent Claims			\$270.00 +	\$	

TOTAL OF ABOVE CALCULATIONS =

\$ 860.00

Reduction by 1/3 for filing by small entity, if applicable. Verified Small Entity statement must also
be filed. (Note 37 C.F.R. 1.9, 1.27, 1.28)

\$

SUBTOTAL =

\$ 860.00

Processing fee of \$130.00 for furnishing the English translation later than ☐ 20 ☐ 30 months
from the earliest claimed priority date (37 CFR 1.492(f)).

\$

TOTAL NATIONAL FEE =

\$ 860.00

Fee for recording the enclosed assignment (37 C.F.R. 1.21(h)). The assignment must be
accompanied by an appropriate cover sheet (37 C.F.R. 3.28, 3.31). \$40.00 per property +**TOTAL FEES ENCLOSED =**

\$ 860.00

Amount to be

\$

charged \$

a. ☒ A check in the amount of \$ 860.00 to cover the above fees is enclosed.b. ☐ Please charge my Deposit Account No. _____ in the amount of \$ _____ to cover the above fees.
A duplicate copy of this sheet is enclosed.c. ☒ The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any
overpayment to Deposit Account No. 50-1519. A duplicate copy of this sheet is enclosed.NOTE: Where an appropriate time limit under 37 C.F.R. 1.494 or 1.495 has not been met, a petition to revive (37 C.F.R. 1.137(a) or (b)) must be
filed and granted to restore the application to pending status.**SEND ALL CORRESPONDENCE TO:**SCHIFF HARDIN & WAITE
PATENT DEPARTMENT
6600 Sears Tower
233 South Wacker Drive
Chicago, Illinois 60606-6473

SIGNATURE

Steven H. Noll
NAME28,982
Registration Number

09/744536
500 Rec'd PCT/PTO 26 JAN 2001
CERTIFICATE OF MAILING BY EXPRESS MAIL

Express Mail Mailing Label Number EL655302801US

Date of Deposit: January 25, 2001

I hereby certify that this correspondence is being deposited with the United States Postal "Express Mail Post Office to Addressee" service under 37 CFR 1.10(c) on the date indicated above and is addressed to:

**BOX PCT
Assistant Commissioner for Patents
Washington DC 20231**

Case Number: P01,0005
Applicant(s): Manfred Tasto

International Application No. PCT/DE99/02004
International Filing Date 01 July 1999
Priority Date Claimed 27 July 1998

Title: METHOD, DEVICE AND SYSTEM FOR OPERATING MOBILE
TELECOMMUNICATIONS TERMINALS IN A PUBLIC CELLULAR
MOBILE RADIO NETWORK

Enclosed are the following documents:

International application as filed;
English Translation;

Executed Declaration;
Change of Address of Applicants' Representative;


PTO 1390 in duplicate;
Amendment "A" prior to action and Submission of Substitute Specification;
Mark-Up for Substitute Specification;

Submission of drawings and drawing changes;

Information Disclosure Statement, PTO 1449, search report, references;

(See attached envelope for Executed Assignment;
PTO 1595; \$40.00 filing fee; Postcard)

Fee: \$860.00
Postcard



Signature of person mailing documents and fees

-1-

BOX PCT

IN THE UNITED STATES ELECTED OFFICE
OF THE UNITED STATES PATENT AND TRADEMARK OFFICE
UNDER THE PATENT COOPERATION TREATY - CHAPTER II

**AMENDMENT "A" PRIOR TO ACTION AND
SUBMISSION OF SUBSTITUTE SPECIFICATION**

APPLICANT(S): TASTO, M.
ATTORNEY DOCKET NO: P01,0005
INTERNATIONAL APPLICATION NO: PCT/DE99/02004
INTERNATIONAL FILING DATE: 01 JUL 1999
INVENTION: METHOD DEVICE AND SYSTEM FOR
OPERATING MOBILE TELECOMMUNI-
CATIONS TERMINALS IN A PUBLIC
CELLULAR MOBILE RADIO NETWORK

Assistant Commissioner for Patents
Washington, DC 20231

Sir:

Applicant herewith requests entry of this amendment in the above-referenced
PCT application prior to examination in the United States National Stage.

IN THE SPECIFICATION

Cancel the specification as filed, and substitute therefore the substitute
specification provided herewith.

IN THE CLAIMS

Cancel claims 1-10 as filed, and insert therefore new claims 11- 25 as follows:

- - What is claimed is:

11. A method for operating a mobile telecommunication terminal in a public cellular mobile radio network having a plurality of radio cells, at least one base transmitting-receiving station and at least one mobile station, the method comprising the steps of:

designating the base transmitting-receiving station as a subscriber in the mobile radio network;

logging the mobile station off from the base transmitting-receiving station when a first message from a locally emitting transmitter of small capacity is received;

in a radio cell, selecting one of, deactivating the mobile station, stopping the mobile station, or passing the mobile station over either into an inactive call-blocked modus or into a modus that is blocked for outgoing calls; and

reactivating the radio cell when a second message is received from the locally emitting transmitter.

12. A method according to claim 11, further comprising the step of manually activating and logging the mobile station onto the mobile radio network given a lack of a second message when the transmission range of the locally emitting transmitter is exceeded.

13. A method according to claim 11, further comprising the step of automatically passing the mobile station over to an active modus and accepting standby operation when the second message is not received after a prescribable time interval.

14. A method according to claim 13, further comprising the step of displaying the message content and/or a message parameter.

15. A method according to claim 14, further comprising the step of signaling reception of either the first message or the second message by one of optical means or acoustic means.

16. A method according to claim 11, wherein a mobile telephone is a subscriber in the radio network.

17. A system for operating a mobile telecommunication terminal in a public cellular mobile radio network having at least one base transmitting-receiving station and at least one mobile station, the mobile station including a transmitter-receiver assembly, a micro controller, a current supply unit, and input and output assemblies, the transmitter-receiver assembly including a picocell radio device for receiving and evaluating specified messages and sending the specified messages to the micro-controller to initiate the microcontroller to transmit a network logoff signal via the transmitter-receiver assembly, whereby the micro controller initiates the deactivation of the part of the transmitter-receiver assembly required for communicating with the base transmitting-receiving station.

18. A system according to claim 17, wherein the mobile station is a mobile telephone.

19. A system for operating a mobile telecommunication terminal in a public cellular mobile radio network having at least one base transmitting-receiving station and at least one mobile station, a pico cell transmitter fixed station is arranged in access areas or at locations where, with regard to the radio cell, active sending mobile stations or the use of such mobile stations is inadmissible or undesired, so that specified messages are emitted in order to automatically deactivate and reactivate the mobile stations situated in the transmission range.

20. A system according to claim 19, wherein the pico cell transmitter fixed station of small capacity is disposed in doorways or on aircraft runways.

21. A system according to claim 20, wherein a pico cell radio system is used for the pico cell transmitter fixed station and for the corresponding radio device in the mobile telephone.

22. A system according to claim 21, wherein the pico cell radio system is a DECT standard system or a blue-tooth standard system.

23. A system according to claim 22, wherein the mobile station is a mobile telephone.

24. A system according to claim 23, wherein the mobile telephone is a dual mode mobile telephone.

25. A system according to claim 24, wherein the mobile telephone is a DECT-GSM mobile telephone. - -

IN THE ABSTRACT

Cancel the Abstract as filed and insert therefore on a separate page, the following Abstract of the Disclosure:

- - ABSTRACT OF THE DISCLOSURE

A solution for operating mobile telecommunication terminals in a public, cellular mobile radio network having at least one base transmitting-receiving station and one mobile station. The solution assures that the mobile station logs off from a respective base transmitting-receiving station and goes into a non-operating state when a first message is received from a locally emitting small capacity transmitter, such as a pico-cell transmitter. The mobile station is later reactivated when a second message is received from the small capacity transmitter, thereby re-establishing a corresponding communication connection provided over the network. - -

REMARKS

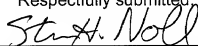
A substitute specification and an Abstract of the Disclosure are provided herewith which make editorial changes in order to conform to standard US practice. A marked-up copy of the specification is also provided reflecting the changes made.

In addition, the claims as filed have been canceled and replaced by new claims that more clearly set forth the subject matter of Applicant's invention.

No new matter has been inserted into the application.

Applicant submits that this application is in proper condition for examination in the United States National Examination Stage, which action is respectfully requested.

Respectfully submitted,



Steven H. Noll (Reg. No. 28,982)

SCHIFF HARDIN & WAITE
Patent Department
6600 Sears Tower
233 South Wacker Drive
Chicago, IL 60606
Telephone (312) 258-5790
Attorneys for Applicant

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500 Rec'd PCT/PTO 2 5 JAN 2001

-1-

BOX PCT

IN THE UNITED STATES ELECTED OFFICE
OF THE UNITED STATES PATENT AND TRADEMARK OFFICE
UNDER THE PATENT COOPERATION TREATY - CHAPTER II

REQUEST FOR APPROVAL OF DRAWING CHANGE

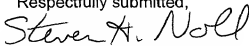
APPLICANT(S): TASTO, M.
ATTORNEY DOCKET NO: P01,0005
INTERNATIONAL APPLICATION NO: PCT/DE99/02004
INTERNATIONAL FILING DATE: 01 JUL 1999
INVENTION: METHOD DEVICE AND SYSTEM FOR
OPERATING MOBILE TELECOMMUNI-
CATIONS TERMINALS IN A PUBLIC
CELLULAR MOBILE RADIO NETWORK

Assistant Commissioner for Patents
Washington, DC 20231

Sir:

Applicant herewith requests approval of the change, as shown in red, on the one drawing sheet attached hereto, in the above-referenced PCT application.

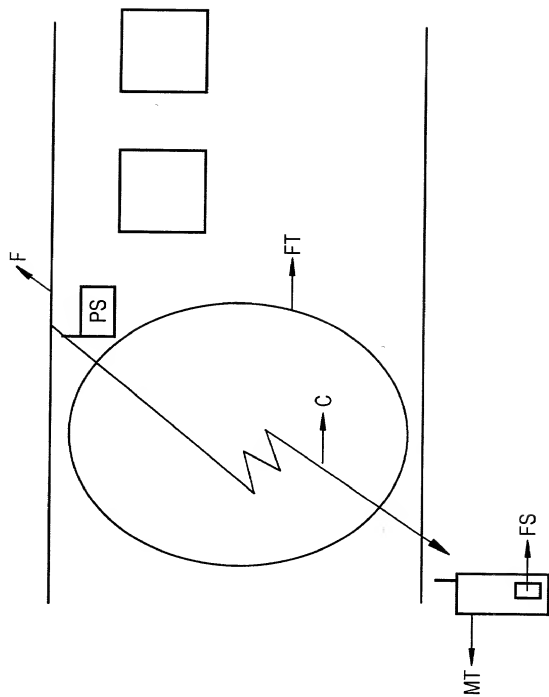
Respectfully submitted,



Steven H. Noll (Reg. No. 28,982)

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1/1



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**METHOD, DEVICE AND SYSTEM FOR OPERATING MOBILE
TELECOMMUNICATION TERMINALS IN A PUBLIC, CELLULAR
MOBILE RADIO NETWORK**

5

The invention relates to a method, a device and a system for operating mobile telecommunication terminals in a public, cellular mobile radio network comprising at least one base transmitting-receiving station and one mobile station, particularly a mobile telephone according to the preamble of patent claim 1, 5 or 6.

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Wireless communication terminals, i.e., mobile radio transmission/reception devices, which are used as terminals, are known. Wireless telephones, mobile telephones, satellite radio telephones, trunk radio telephones etc. are only cited as examples here.

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Furthermore, it is known to operate such telecommunication devices or terminals within international mobile radio networks according to the GSM standard (Global System for Mobile Communication, for example.

20

Telephone users have communication possibilities in such mobile radio networks, and data services and further services can be performed via the network. Known public mobile radio networks can be connected together with further networks such as the public telephone network or, respectively, the ISDN network, and also with local, line-bound networks. Moreover, connections from and to other public mobile radio networks are supported as well.

25

The GSM mobile radio network is a mobile communication system, which is cellularly composed of a great number of radio units, whereby each radio cell is operated by a base transmitting-receiving station, which respectively sets up connections to the mobile stations of the subscribers via corresponding air interfaces.

30

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The base transmitting-receiving stations are normally operated by a what is referred to as base drive. A plurality of base drives are connected to a mobile switching center, which assumes the required switching-oriented functions in a fixed coverage area in the radio network.

5

The increase in the use of wireless telecommunication offers by possession and use of mobile stations leads to dangers at locations where low transmission performances in critical frequency areas can already cause interferences of sensitive electronic devices. For example, this is the case when a mobile station is used without authority, such as the use of a mobile telephone in civil planes. The same dangers are present when mobile telephones or mobile telecommunication terminals are used, for example, in hospitals or close to explosion-endangered spaces such as gas stations.

10

The intended or unintended use of mobile telephones in public areas such as theaters, movie theaters or suchlike is also experienced as disturbing.

15

Therefore, the invention is based on the object of proposing a method, a device and a system for operating mobile telecommunication terminals in a public, cellular mobile radio network with at least one base transmitting-receiving station and one mobile station, particularly a mobile telephone, which makes it possible to assure that mobile telephones or, respectively, mobile telecommunication terminals are switched off or deactivated in particularly security-relevant areas with regard to electromagnetic compatibility or in other endangered areas, so that interfering high-frequency transmission performance is not emitted.

20

The object is achieved by a method according to the definition of patent claim 1, by a device as it is defined according to the subject matter of patent claim 5, and/or by a system for operating mobile telecommunication terminals according to the features of patent claim 6, whereby the subclaims represent at least expedient embodiments and further developments of the invention.

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In less critical areas, the mobile station need not be completely deactivated but can be kept in the idle mode, whereby, after the transmission range has been left, an automatic transition into the standby modus occurs upon employment of the conventional mechanisms and processes for the mobility administration without the user of the mobile station having to input data or commands.

The inventive device for operating mobile telecommunication terminals in a public, cellular mobile radio network with at least one base transmitting-receiving station and one mobile station, particularly a mobile telephone with a transmitter-receiver assembly, a micro controller, a current supply unit and input assemblies and output assemblies proceeds from a so developed transmitter-receiver assembly, which comprises a pico cell radio device for receiving and evaluating specified messages. The pico cell radio device leads the received specified messages onto the micro controller in order to initiate it to transmit a network logoff signal via the transmitter-receiver assembly and to deactivate or, respectively, switch off the current supply unit of the mobile telephone, whereby the pico cell radio device remains active.

In addition to the actual transmitter-receiver assembly, i.e., the operating radio system for the mobile communication, each mobile telecommunication terminal therefore inventively contains a second low-power radio system, particularly a receiving system for the communication over a small distance, i.e., in the framework of a what is referred to as pico cell.

A counter-station, i.e., a pico cell transmitter fixed station is situated, for example, at airplane entries, at entries of hospitals etc. and sends the specified messages.

As soon as the pico cell radio device of the respective mobile station comes close to a pico cell transmitter fixed station, namely such that an error-free data exchange becomes possible, the fixed station informs the mobile telecommunication terminal

via the pico cell by means of a separate code, i.e., informs the messages, that the mobile telephone must be deactivated.

Subsequently, the mobile telephone switches off the cellular radio system, whereby
5 the pico cell radio device remains active. In this way, the pico cell radio device is capable of receiving a further message or code sent by the fixed station in order to effect a reactivation.

In an embodiment of the invention, a DECT system or blue-tooth system, which is
10 already integrated into the mobile telephone or which is additionally arranged, is used for a pico cell radio system. For example, a DECT radio part can be used for what are referred to as dual mode mobile telephones DECT-GSM. The pico cell radio system therefore is not or is not only used for forwarding user data but also for remotely controlling mobile radio device functions independently of actions of the user or,
15 respectively, has such a function in addition.

Due to the signaling of the network login in connection with a call by the pico cell transmitter fixed station, it can be signalized to the callers that a connection cannot be set up at the moment due to a specific location where the mobile radio network user
20 is. It is possible here, in a way known per se, to switch to a call forwarding or a call memory. An IMSI detach information is normally transmitted to the network or, respectively, the respective base transmitting-receiving station prior to the deactivation the respective mobile station, for example in the framework of a GSM mobile radio network. [sic]

25 The invention is subsequently explained in greater detail on the basis of an exemplary embodiment and upon reference to a Figure.

The Figure shows a basic arrangement of a pico cell fixed station in the area of the
30 door opening of an airplane.

A pico cell transmitter fixed station PS, which is capable of transmitting specified messages of small capacity, i.e., locally, is arranged at the airplane body F in immediate proximity of a door opening.

- 5 If a mobile telephone MT reaches the radiation range of the fixed station PS - for example when a user enters the airplane via the door opening FT - the pico cell radio device FS in the mobile telephone MT receives the corresponding message.

- After this message has been received, the mobile telephone MT logs off from a base transmitting-receiving station (not shown) and the mobile station is completely deactivated subsequent to the network logoff.
- 10

- Instead of a complete deactivation of the mobile part, it can also be merely initiated that it is no longer possible to access the respective radio cell via a corresponding transmitter-receiver assembly in the mobile telephone MT and, on the other hand, that
- 15 the pico cell radio device FS in the mobile telephone MT remains receive ready. In this embodiment, the mobile telephone is activated again and logged into the network in that a second message is transmitted on the part of the locally emitting transmitter, i.e., the pico cell transmitter fixed station PS. The messages to be transmitted are
- 20 symbolized by the reference letter C, whereby the transmission path is represented by arrows.

- It is certainly possible with respect to the exemplary embodiment to manually reactivate the mobile telephone MT and to log into the network after the transmission
- 25 range of the locally emitting transmitter or, respectively, of the pico cell transmitter fixed station PS has been left.

The entering into the transmission range of the fixed station FS is preferably optically and/or acoustically signalized to the user of the mobile telephone MT.

As a result of the described exemplary embodiment, it is possible to assure that mobile telephones cannot be intentionally or unintentionally used in particularly security-relevant or endangered areas. In this way, interferences of sensitive electronic devices, for example in civil planes or suchlike, can be avoided. A call
5 blocking, which can be automatically cancelled when the area is left, can also be externally imposed or enforced onto the mobile telephone in particularly relevant areas and also at locations where interferences are undesired.

Optical and/or acoustic signaling measures that are known per se are used upon
10 utilization of the corresponding assemblies of the mobile telephone in order to indicate the entering or leaving of the pico cell area with the corresponding consequences with respect to the subscriber and user of the mobile radio network.

15

Patent claims

1. Method for operating mobile telecommunication terminals in a public, cellular mobile radio network comprising at least one base transmitting-receiving station and one mobile station, particularly a mobile telephone,
5 characterized in that
the mobile station logs off from the respective base transmitting-receiving station as a subscriber in the mobile radio network when a first message of a locally emitting transmitter of small capacity is received, whereby, subsequent to the network logoff,
10 the mobile station, with regard to the radio cell, is completely deactivated and stopped or passes over into an inactive call-blocked modus on the part of the network and/or into a modus that is blocked for outgoing calls and whereby it is reactivated when a second message is received from the locally emitting transmitter.
- 15 2. Method according to claim 1,
characterized in that
the mobile station, when the transmission range of the locally emitting transmitter is left, is manually activated and is logged into the network given a lack of the second message.
- 20 3. Method according to claim 1,
characterized in that
the respective mobile station automatically passes over into the active modus and accepts the standby operation when the second message is not received over a
25 prescribable time interval.
4. Method according to one of the previous claims,
characterized in that
the reception of the first and/or second message is optically and/or acoustically
30 signalized, whereby the message content and or message parameter can be displayed.

5. Device for operating mobile telecommunication terminals in a public, cellular mobile radio network comprising at least one base transmitting-receiving station and one mobile station, particularly a mobile station (MT), whereby the mobile station (MT) comprises a transmitter-receiver assembly, a micro controller, a current supply unit, as well as input assemblies and output assemblies,
5 characterized in that
the transmitter-receiver assembly additionally comprises a pico cell radio device (FS) for receiving and evaluating specified messages (C), whereby the pico cell radio device (FS) leads the specified messages (C) onto the micro controller in order to
10 initiate it to transmit a network logoff signal via the transmitter-receiver assembly, and whereby the micro controller initiates the deactivation of the part of the transmitter-receiver assembly that is required for communicating with the base station.
- 15 6. System for operating mobile telecommunication terminals in a public, cellular mobile radio network comprising at least one base transmitting-receiving station and one mobile station, particularly a mobile telephone,
characterized in that
a pico cell transmitter fixed station (FS) is arranged in access areas or at locations
20 where, with regard to the radio cell, active sending mobile stations or the use of such mobile stations is inadmissible or undesired, so that specified messages are emitted in order to automatically deactivate and reactivate the mobile stations situated in the transmission range.
- 25 7. System according to claim 6,
characterized in that
the pico cell transmitter fixed station (FS) of small capacity is arranged in the area of openings for persons or road of [sic] airplanes.
- 30 8. System according to claim 6 or 7,

characterized in that
a present pico cell radio system is used as pico cell transmitter fixed station and for
the corresponding radio device in the mobile telephone.

- 5 9. System according to claim 8,
characterized in that
the pico cell radio system is a DECT standard system or a blue-tooth standard system.

- 10 10. System according to claim 9,
characterized in that
the mobile telephone is a dual mode mobile telephone, particularly a DECT-GSM
mobile telephone.

Abstract

Method, device and system for operating mobile telecommunication terminals in a public, cellular mobile radio network

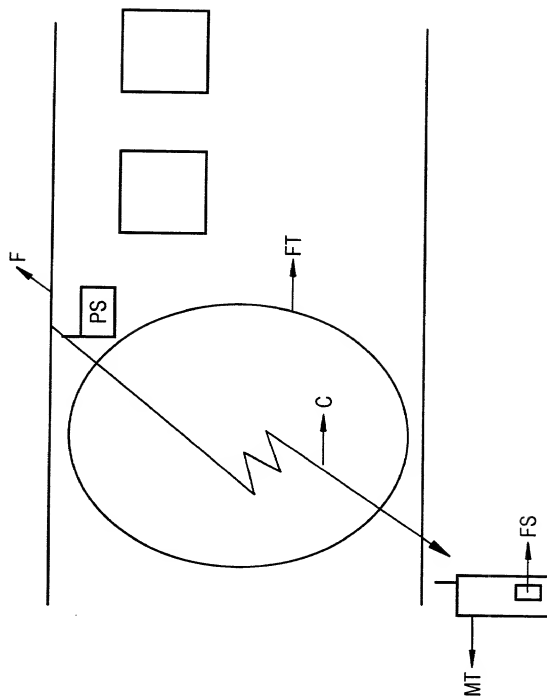
5

The invention relates to a solution for operating mobile telecommunication terminals in a public, cellular mobile radio network comprising at least one base transmitting-receiving station and one mobile station, whereby it is assured that the mobile station logs off from the respective base transmitting-receiving station and goes into a non-
10 operating state when a first message is received from a locally emitting transmitter of a small capacity, i.e., of a pico cell transmitter and whereby it can be reactivated when a second message is received from the pico cell transmitter, so that a corresponding communication is provided over the network.

15 Figure 2

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Substitute Specification:

-- **METHOD AND SYSTEM FOR OPERATING A MOBILE
TELECOMMUNICATION TERMINAL IN A CELLULAR
MOBILE RADIO NETWORK**

BACKGROUND OF THE INVENTION

Field of the Invention

The present invention generally pertains to mobile telecommunications terminals. In particular, the present invention pertains to mobile telecommunications terminals in public cellular mobile radio networks.

Discussion of the Related Art

Using wireless communication terminals, such as mobile radio transmission/reception devices, as telecommunications terminals is known. Some types of common wireless communications terminals include, wireless telephones, mobile telephones, satellite radio telephones, and trunk radio telephones.

Furthermore, it is known to operate such telecommunication devices or terminals within international mobile radio networks according to various standards, such as the GSM standard (Global System for Mobile) communication, for example.

Telephone users have communication possibilities in such mobile radio networks and data services, and further services can be performed via the network. Known public mobile radio networks can be connected together with further networks such as the public telephone network or an ISDN network, as well as with local, line-bound networks. Moreover, connections from and to other public mobile radio networks are supported as well.

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The GSM mobile radio network is a mobile communication system, which is cellularly composed of a great number of radio units, wherein each radio cell is operated by a base transmitting-receiving station, which set up connections to the mobile stations of the subscribers via corresponding air interfaces.

The base transmitting-receiving stations are normally operated by a what is referred to as base drive. A plurality of base drives are connected to a mobile switching center, which assumes the required switching-oriented functions in a fixed coverage area in the radio network.

The increase in the use of wireless telecommunication offered by mobile stations leads to dangers at locations where low transmission performances in critical frequency areas can cause interferences with sensitive electronic devices. For example, when a mobile station is used without authority, such as on an airliner. The same dangers are present when mobile telephones or mobile telecommunication terminals are used, for example, in hospitals or close to explosion-endangered spaces, such as gas stations. The intended or unintended use of mobile telephones in public areas such as restaurants, movie theaters, and such, is also disturbing.

Therefore, the present invention provides a method and system for operating mobile telecommunication terminals in a public, cellular mobile radio network involving the use of at least one base transmitting-receiving station and at least one mobile station. The present invention assures that mobile telephones or mobile telecommunication terminals are switched off or deactivated in particular areas when there is concern for electromagnetic compatibility, or in areas where there is the possibility of high-frequency interference.

SUMMARY OF THE INVENTION

Accordingly, it is an object of the present invention to provide a method and system for operating mobile telecommunications terminals in a public cellular mobile radio network.

It is another object of the invention to provide method and system for operating mobile telecommunications terminals involving a pico-cell.

It is a further object of the invention to provide a method and system for deactivating mobile telecommunications terminals in areas where there is concern for electromagnetic compatibility.

BRIEF DESCRIPTION OF THE DRAWING

Figure 1 shows a pico-cell arranged in accordance with the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

The basic method according to the present invention causes a mobile telephone to log off from an adjacent base transmitting-receiving station and go into an inactive state when the mobile telephone receives a specified first message from a locally emitting transmitter of a small capacity, such as a pico-cell transmitter.

The mobile telephone can be automatically reactivated and can log into the network when receiving a second message from the locally emitting transmitter. The network login and logoff is conducted in the framework of a standard protocol exchange with the adjacent base transmitting-receiving station.

It is also possible with respect to the method to manually activate the mobile station and to log into the network when a second message is not present when the

transmission area of the locally emitting transmitter is left. A transition into the active modus or into the standby modus can also be automatically provided when the specified message is not received or is no longer received over a prescribable time interval.

Reception of the specified messages can be optically and/or acoustically signalized to the user of the mobile telephone, wherein it is also conceivable to display the message content or the message parameters at the mobile telephone display.

Optical and/or acoustic signalization calls the attention of the mobile radio telephone user to the fact that he has entered an endangered area, and to the effect that his mobile telephone will soon pass over into the inactive state. As long as the mobile radio telephone user is situated with his mobile telephone in the transmission range of the transmitter of a small capacity and a disabling code is sent and received he is not capable of deliberately operating the telephone again, with the consequence of interfering high-frequency radiation.

In less critical areas, the mobile station need not be completely deactivated but can be kept in an idle mode, wherein, after the transmission range has been left, an automatic transition into the standby modus occurs upon use of conventional processes without user of the mobile station having to input data or commands.

The method of the present invention can be carried out via a device for operating mobile telecommunication terminals in a public, cellular mobile radio network with at least one base transmitting-receiving station and one mobile station. In particular, the mobile station can be a mobile telephone with a transmitter-receiver assembly, a micro controller, a current supply unit and input assemblies and output

assemblies proceeds from a so developed transmitter-receiver assembly, which comprises a pico-cell radio device for receiving and evaluating specified messages. The pico-cell radio device sends the received specified messages onto the micro controller in order to cause it to transmit a network logoff signal via the transmitter-receiver assembly and to deactivate or, switch off the current supply unit of the mobile telephone, while the pico-cell radio device remains active.

In addition to the actual transmitter-receiver assembly, i.e., the operating radio system for the mobile communication, each mobile telecommunication terminal contains a second low-power radio system, particularly a receiving system for the communication over a small distance, which is referred to as pico-cell.

A counter-station, that is a pico-cell transmitter fixed station, is situated at airplane doorways, at entrances to hospitals etc., and sends the specified messages.

As soon as the pico-cell radio device of the mobile station comes close to a pico-cell transmitter fixed station, such that an error-free data exchange becomes possible, the fixed station informs the mobile telecommunication terminal via the pico-cell by means of a separate code that the mobile telephone must be deactivated.

Subsequently, the mobile telephone switches off the cellular radio system, although the pico-cell radio device remains active. In this way, the pico-cell radio device is capable of receiving a further message or code sent by the fixed station.

A DECT (Digital European Cordless Telecommunications) system or Blue-Tooth system (standardized data synchronization), which is already integrated into the mobile telephone or which may be incorporated later, can be used for a pico-cell

radio system. For example, a DECT radio part can be used for what are referred to as dual mode mobile telephones DECT-GSM. Therefore, the pico-cell radio system is not only used for forwarding user data, but also be used for remotely controlling mobile radio device functions independently of actions of the user or, has such a function in addition.

Due to the signaling of the network login in connection with a call by the pico-cell transmitter fixed station, the callers can be informed that a connection cannot be set up at the moment due to a specific location where the mobile radio network user is. It is possible to switch to a call forwarding or a call memory. IMSI (International Mobile Subscriber Identity) detach information is normally transmitted to the network or base transmitting-receiving station prior to the deactivation the respective mobile station in the framework of a GSM mobile radio network.

An exemplary embodiment of the present invention will now be discussed with reference to Figure 1.

Figure 1 shows a basic arrangement of a pico-cell fixed station in the area of the door opening of an airplane.

A pico-cell transmitter fixed station PS, which is capable of transmitting specified messages of small capacity is shown in Figure 1. The fixed station PS is a locally emitting transmitter of small capacity. The fixed station PS is situated on the airplane body F in immediate proximity to the door opening.

If a mobile telephone MT reaches the radiation range of the fixed station PS, such as when a user enters the airplane via the door opening FT, the pico-cell radio device FS in the mobile telephone MT receives a corresponding message.

After this message has been received, the mobile telephone MT logs off from a base transmitting-receiving station (not shown) and the mobile station is completely deactivated subsequent to the network logoff.

Instead of a complete deactivation of the mobile part, the present invention makes it no longer possible to access the respective radio cell via a corresponding transmitter-receiver assembly in the mobile telephone MT. However, the pico-cell radio device FS in the mobile telephone MT remains receive ready.

In the embodiment shown in Figure 1, the mobile telephone is activated again and logged into the network when a second message is transmitted by the locally emitting transmitter, i.e., the pico-cell transmitter fixed station PS. The messages to be transmitted are symbolized by the reference letter C, wherein the transmission path is represented by arrows.

It is certainly possible to manually reactivate the mobile telephone MT and to log into the network after the transmission range of the locally emitting transmitter or of the pico-cell transmitter fixed station PS has been exceeded.

The entering into the transmission range of the fixed station FS is preferably optically and/or acoustically indicated to the user of the mobile telephone MT.

As a result of the described exemplary embodiment shown in Figure 1, it is possible to assure that mobile telephones cannot be intentionally or unintentionally used in particularly security-relevant or endangered areas. In this way, interferences of sensitive electronic devices, for example on airplanes, can be avoided. Call blocking, which can be automatically cancelled when the area is left, can also be externally imposed or enforced onto the mobile telephone in particularly relevant areas, and also at locations where interferences are undesired.

Optical and/or acoustic signaling measures can be used to indicate that the user is entering or leaving a pico-cell area, with the corresponding consequences with respect to the subscriber and user of the mobile radio network.

Although modifications and changes may be suggested by those skilled in the art to which the present invention pertains, it is the intention of the inventors to embody with the patent warranted hereon all changes and modifications that may reasonably and properly come under the scope of their contribution to the art.

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H04Q 7/32, H04B 15/02

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CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC,
NL, PT, SE).

Veröffentlicht

Mit internationalem Recherchenbericht.

Vor Ablauf der für Änderungen der Ansprüche zugelassenen
Frist; Veröffentlichung wird wiederholt falls Änderungen
eintreffen.(54) Title: METHOD, DEVICE AND SYSTEM FOR OPERATING MOBILE TELECOMMUNICATIONS TERMINALS IN A PUBLIC
CELLULAR MOBILE RADIO NETWORK(54) Bezeichnung: VERFAHREN, VORRICHTUNG UND SYSTEM ZUM BETREIBEN VON MOBILEN TELEKOMMUNIKATION-
SENDGERÄTEN IN EINEM ÖFFENTLICHEN, ZELLULAREN MOBILFUNKNETZ

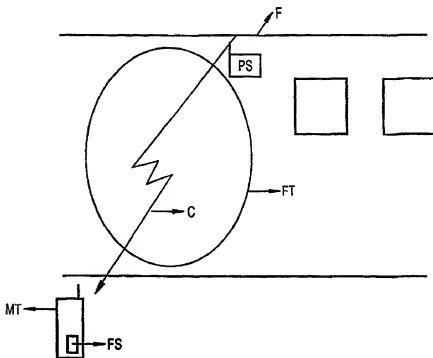
(57) Abstract

The invention relates to a solution for operating mobile telecommunications terminals in a public cellular mobile radio network comprising at least one base transmitting-receiving station and one mobile station. The invention provides that the mobile station logs off from the respective base transmitting-receiving station and goes into a non-operating state when receiving a first message from a locally emitting transmitter of a small capacity, i.e. of a pico cell transmitter. Alternatively, the respective base transmitting-receiving station is reactivated when receiving a second message from the pico cell transmitter so that a corresponding communication is provided over the network.

(57) Zusammenfassung

Die Erfindung betrifft eine Lösung zum Betreiben von mobilen Telekommunikationsendgeräten in einem öffentlichen, zellularen

Mobilfunknetz mit mindestens einer Basis-Sende/Empfangsstation und einer Mobilstation, wobei sichergestellt ist, daß die Mobilstation bei Empfang einer ersten Nachricht eines lokal strahlenden Senders kleiner Leistung, d.h. eines Piko-Zellen-Senders, sich von der jeweiligen Basis-Sende/Empfangsstation abmeldet und außer Betrieb geht, andererseits beim Empfang einer zweiten Nachricht vom Piko-Zellen-Sender wieder aktivierbar ist, so daß eine entsprechende Kommunikation über das Netz gegeben ist.



-1-

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SUBMISSION OF DRAWINGS

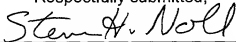
APPLICANT(S): TASTO, M.
ATTORNEY DOCKET NO: P01,0005
INTERNATIONAL APPLICATION NO: PCT/DE99/02004
INTERNATIONAL FILING DATE: 01 JUL 1999
INVENTION: METHOD DEVICE AND SYSTEM FOR
OPERATING MOBILE TELECOMMUNI-
CATIONS TERMINALS IN A PUBLIC
CELLULAR MOBILE RADIO NETWORK

Assistant Commissioner for Patents
Washington, DC 20231

Sir:

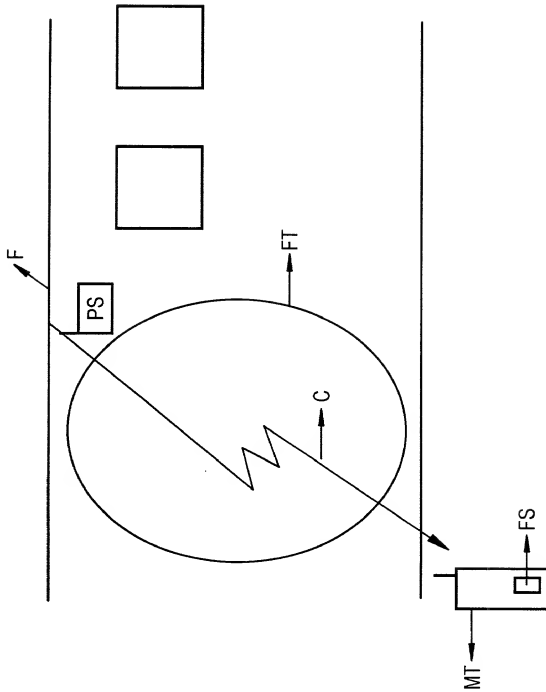
Applicant herewith submits one sheet of drawings, showing Figure 1, for the
above-referenced PCT application.

Respectfully submitted,



Steven H. Noll (Reg. No. 28,982)

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Declaration and Power of Attorney For Patent Application

Erklärung Für Patentanmeldungen Mit Vollmacht

German Language Declaration

Als nachstehend benannter Erfinder erkläre ich hiermit an Eides Statt:

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I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled

Verfahren, Vorrichtung und System zum
Betreiben von mobilen Telekommunikations-
geräten in einem öffentlichen, zel-
lularen Mobilfunknetz

deren Beschreibung

the specification of which

(zutreffendes ankreuzen)

(check one)

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PCT Application No. _____

eingereicht wurde und am _____

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(if applicable)

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I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims as amended by any amendment referred to above.

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I acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations, §1.56(a).

Ich beanspruche hiermit ausländische Prioritätsvorteile gemäß Abschnitt 35 der Zivilprozessordnung der Vereinigten Staaten, Paragraph 119 aller unten angegebenen Auslandsanmeldungen für ein Patent oder eine Erfindersurkunde, und habe auch alle Auslandsanmeldungen für ein Patent oder eine Erfindersurkunde nachstehend gekennzeichnet, die ein Anmeldedatum haben, das vor dem Anmeldedatum der Anmeldung liegt, für die Priorität beansprucht wird.

I hereby claim foreign priority benefits under Title 35, United States Code, §119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

09744536 012501

German Language Declaration

Prior foreign applications
Priorität beansprucht

Priority Claimed

198 33 777.9 Germany 27. Juli 1998
(Number) (Country) (Day Month Year Filed)
(Nummer) (Land) (Tag Monat Jahr eingereicht)

☒ ☐
Yes No
Ja Nein

(Number) (Country) (Day Month Year Filed)
(Nummer) (Land) (Tag Monat Jahr eingereicht)

☐ ☐
Yes No
Ja Nein

(Number) (Country) (Day Month Year Filed)
(Nummer) (Land) (Tag Monat Jahr eingereicht)

☐ ☐
Yes No
Ja Nein

Ich beanspruche hiermit gemäss Absatz 35 der Zivilprozessordnung der Vereinigten Staaten, Paragraph 120, den Vorzug aller unten aufgeführten Anmeldungen und falls der Gegenstand aus jedem Anspruch dieser Anmeldung nicht in einer früheren amerikanischen Patentanmeldung laut dem ersten Paragraphen des Absatzes 35 der Zivilprozessordnung der Vereinigten Staaten, Paragraph 122 offenbart ist, erkenne ich gemäss Absatz 37, Bundesgesetzbuch, Paragraph 1.56(a) meine Pflicht zur Offenbarung von Informationen an, die zwischen dem Anmeldedatum der früheren Anmeldung und dem nationalen oder PCT internationalen Anmeldedatum dieser Anmeldung bekannt geworden sind.

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(Application Serial No.)
(Anmeldeseriennummer)

(Filing Date)
(Anmeldedatum)

(Status)
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(Status)
(patented, pending,
abandoned)

(Application Serial No.)
(Anmeldeseriennummer)

(Filing Date)
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APPLICANT(S): TASTO, M.
ATTORNEY DOCKET NO: P01,0005
INTERNATIONAL APPLICATION NO: PCT/DE99/02004
INTERNATIONAL FILING DATE: 01 JULY 1999
INVENTION: METHOD DEVICE AND SYSTEM FOR OPERATING MOBILE
TELECOMMUNICATIONS TERMINALS IN A PUBLIC CELLULAR
MOBILE RADIO NETWORK

Assistant Commissioner for Patents
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Sir:

Members of the firm of Hill & Simpson designated on the original Power of Attorney have merged into the firm of Schiff Hardin & Waite. All future correspondence for the above-referenced application therefore should be sent to the following address:

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Submitted by,

Steven H. Noll (Reg. No. 28,982)

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German Language Declaration

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POWER OF ATTORNEY: As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith. (list name and registration number)

And I hereby appoint

Messrs. John D. Simpson (Registration No. 19,842), Lewis T. Steadman (17,074), William C. Stueber (16,463), P. Phillips Connor (19,259), Dennis A. Gross (24,410), Marvin Moody (16,549), Steven H. Noll (28,982), Brett A. Valskiel (27,341), Thomas I. Ross (29,275), Kevin W. Gunn (29,927), Edward A. Lehmann (22,312), James D. Hobart (24,149), Robert M. Barnett (30,142), James Van Santen (16,584), J. Arthur Gross (13,615), Richard T. Schwarz (13,472) and Melvin A. Robinson (31,870), David R. Metzger (32,919), John R. Garrett (27,888) all members of the firm of Hill, Steadman & Simpson, A Professional Corporation.

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85th Floor Sears Tower, Chicago, Illinois 60606

Voller Name des einzigen oder ursprünglichen Erfinders:		Full name of sole or first inventor:	
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Unterschrift des Erfinders	Datum	Inventor's signature	Date
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Staatsangehörigkeit		Citizenship	
Bundesrepublik Deutschland			
Postanschrift		Post Office Address	
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D-46397 Bocholt			
Bundesrepublik Deutschland			
Voller Name des zweiten Miterfinders (falls zutreffend):		Full name of second joint inventor, if any:	
Unterschrift des Erfinders	Datum	Second inventor's signature	Date
Wohnsitz		Residence	
Staatsangehörigkeit		Citizenship	
Postanschrift		Post Office Address	

(Bitte entsprechende Informationen und Unterschriften im Falle von dritten und weiteren Miterfindern angeben).

(Supply similar information and signature for third and subsequent joint inventors).